

0590  
Troy

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RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/001,245

DATE: 12/16/2002 ⑥  
TIME: 13:00:10

Input Set : A:\Sequence Listing (ASCII copy).txt  
Output Set: N:\CRF4\12162002\J001245.raw

3 <110> APPLICANT: HOLM, Jens  
4 IPSEN, Henrik  
5 LARSEN, Jorgen N.  
6 SPANGFORT, Michael D.  
8 <120> TITLE OF INVENTION: Novel mutant allergens  
10 <130> FILE REFERENCE: 4305/1H942-US2  
12 <140> CURRENT APPLICATION NUMBER: US 10/001,245  
13 <141> CURRENT FILING DATE: 2001-11-15  
15 <150> PRIOR APPLICATION NUMBER: US 60/298,170  
16 <151> PRIOR FILING DATE: 2001-06-14  
18 <150> PRIOR APPLICATION NUMBER: US 60/249,361  
19 <151> PRIOR FILING DATE: 2000-11-16  
21 <160> NUMBER OF SEQ ID NOS: 217  
23 <170> SOFTWARE: PatentIn version 3.1  
25 <210> SEQ ID NO: 1  
26 <211> LENGTH: 160  
27 <212> TYPE: PRT  
28 <213> ORGANISM: Betula verrucosa  
30 <220> FEATURE:  
31 <221> NAME/KEY: mutation  
32 <222> LOCATION: (28)..(28)  
33 <223> OTHER INFORMATION:  
35 <220> FEATURE:  
36 <221> NAME/KEY: mutation  
37 <222> LOCATION: (32)..(32)  
38 <223> OTHER INFORMATION:  
W--> 40 <220>  
41 <221> NAME/KEY: mutation  
42 <222> LOCATION: (78)..(78)  
43 <223> OTHER INFORMATION:  
W--> 45 <220>  
46 <221> NAME/KEY: mutation  
47 <222> LOCATION: (103)..(103)  
48 <223> OTHER INFORMATION:  
W--> 50 <220>  
51 <221> NAME/KEY: mutation  
52 <222> LOCATION: (145)..(145)  
53 <223> OTHER INFORMATION:  
W--> 55 <220>  
56 <221> NAME/KEY: mutation  
57 <222> LOCATION: (156)..(156)  
58 <223> OTHER INFORMATION:  
W--> 60 <220>

RAW SEQUENCE LISTING  
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Input Set : A:\Sequence Listing (ASCII copy).txt  
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61 <221> NAME/KEY: mutation  
62 <222> LOCATION: (160)..(160)  
63 <223> OTHER INFORMATION:

W--> 65 <400> 1

67 Gly Val Phe Asn Tyr Glu Thr Thr Ser Val Ile Pro Ala Ala  
68 1 5 10 15  
71 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Thr Leu Phe Pro Gln  
72 20 25 30  
75 Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Glu Gly Asn Gly  
76 35 40 45  
79 Gly Pro Gly Thr Ile Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe  
80 50 55 60  
83 Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys  
84 65 70 75 80  
87 Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu  
88 85 90 95  
91 Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Pro Asp Gly Gly Ser  
92 100 105 110  
95 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val  
96 115 120 125  
99 Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu Leu  
100 130 135 140  
103 Glu Ala Val Glu Ser Tyr Leu Leu Ala His Ser His Ala Tyr Asn Asn  
104 145 150 155 160

107 <210> SEQ ID NO: 2

108 <211> LENGTH: 159

109 <212> TYPE: PRT

110 <213> ORGANISM: Betula verrucosa

112 <220> FEATURE:

113 <221> NAME/KEY: mutation

114 <222> LOCATION: (5)..(5)

115 <223> OTHER INFORMATION:

117 <220> FEATURE:

118 <221> NAME/KEY: mutation

119 <222> LOCATION: (42)..(42)

120 <223> OTHER INFORMATION:

W--> 122 <220>

123 <221> NAME/KEY: mutation

124 <222> LOCATION: (45)..(45)

125 <223> OTHER INFORMATION:

W--> 127 <220>

128 <221> NAME/KEY: mutation

129 <222> LOCATION: (78)..(78)

130 <223> OTHER INFORMATION:

W--> 132 <220>

133 <221> NAME/KEY: mutation

134 <222> LOCATION: (103)..(103)

135 <223> OTHER INFORMATION:

W--> 137 <220>

RAW SEQUENCE LISTING  
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TIME: 13:00:10

Input Set : A:\Sequence Listing (ASCII copy).txt  
Output Set: N:\CRF4\12162002\J001245.raw

138 <221> NAME/KEY: mutation  
139 <222> LOCATION: (123)..(123)  
140 <223> OTHER INFORMATION:

w--> 142 <220>

143 <221> NAME/KEY: mutation  
144 <222> LOCATION: (134)..(134)  
145 <223> OTHER INFORMATION:

w--> 147 <220>

148 <221> NAME/KEY: mutation  
149 <222> LOCATION: (156)..(156)  
150 <223> OTHER INFORMATION:

w--> 152 <400> 2

154 Gly Val Phe Asn Val Glu Thr Glu Thr Ser Val Ile Pro Ala Ala  
155 1 5 10 15  
158 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Asn Leu Phe Pro Lys  
159 20 25 30  
162 Val Ala Pro Gln Ala Ile Ser Ser Val Ser Asn Ile Ser Gly Asn Gly  
163 35 40 45  
166 Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe  
167 50 55 60  
170 Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys  
171 65 70 75 80  
174 Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu  
175 85 90 95  
178 Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Pro Asp Gly Gly Ser  
179 100 105 110  
182 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val  
183 115 120 125  
186 Lys Ala Glu Gln Val Glu Ala Ser Lys Glu Met Gly Glu Thr Leu Leu  
187 130 135 140  
190 Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser His Ala Tyr Asn  
191 145 150 155

194 <210> SEQ ID NO: 3

195 <211> LENGTH: 159

196 <212> TYPE: PRT

197 <213> ORGANISM: Betula verrucosa

199 <220> FEATURE:

200 <221> NAME/KEY: mutation

201 <222> LOCATION: (28)..(28)

202 <223> OTHER INFORMATION:

204 <220> FEATURE:

205 <221> NAME/KEY: mutation

206 <222> LOCATION: (32)..(32)

207 <223> OTHER INFORMATION:

w--> 209 <220>

210 <221> NAME/KEY: mutation

211 <222> LOCATION: (45)..(45)

212 <223> OTHER INFORMATION:

w--> 214 <220>

RAW SEQUENCE LISTING  
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Input Set : A:\Sequence Listing (ASCII copy).txt  
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215 <221> NAME/KEY: mutation  
216 <222> LOCATION: (108)..(108)  
217 <223> OTHER INFORMATION:

W--> 219 <400> 3

221 Gly Val Phe Asn Tyr Glu Thr Thr Ser Val Ile Pro Ala Ala  
222 1 5 10 15  
225 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Thr Leu Phe Pro Gln  
226 20 25 30  
229 Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Ser Gly Asn Gly  
230 35 40 45  
233 Gly Pro Gly Thr Ile Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe  
234 50 55 60  
237 Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys  
238 65 70 75 80  
241 Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu  
242 85 90 95  
245 Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Gly Asp Gly Gly Ser  
246 100 105 110  
249 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val  
250 115 120 125  
253 Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu Leu  
254 130 135 140  
257 Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser Asp Ala Tyr Asn  
258 145 150 155

261 <210> SEQ ID NO: 4

262 <211> LENGTH: 159

263 <212> TYPE: PRT

264 <213> ORGANISM: Betula verrucosa

266 <220> FEATURE:

267 <221> NAME/KEY: mutation

268 <222> LOCATION: (5)..(5)

269 <223> OTHER INFORMATION:

271 <220> FEATURE:

272 <221> NAME/KEY: mutation

273 <222> LOCATION: (45)..(45)

274 <223> OTHER INFORMATION:

W--> 276 <220>

277 <221> NAME/KEY: mutation

278 <222> LOCATION: (65)..(65)

279 <223> OTHER INFORMATION:

W--> 281 <220>

282 <221> NAME/KEY: mutation

283 <222> LOCATION: (97)..(97)

284 <223> OTHER INFORMATION:

W--> 286 <220>

287 <221> NAME/KEY: mutation

288 <222> LOCATION: (134)..(134)

289 <223> OTHER INFORMATION:

W--> 291 <400> 4

RAW SEQUENCE LISTING  
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DATE: 12/16/2002  
TIME: 13:00:10

Input Set : A:\Sequence Listing (ASCII copy).txt  
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293 Gly Val Phe Asn Val Glu Thr Glu Thr Ser Val Ile Pro Ala Ala  
294 1 5 10 15  
297 Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Asn Leu Phe Pro Lys  
298 20 25 30  
301 Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Ser Gly Asn Gly  
302 35 40 45  
305 Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe  
306 50 55 60  
309 Asn Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys  
310 65 70 75 80  
313 Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu  
314 85 90 95  
317 Ser Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly Ser  
318 100 105 110  
321 Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val  
322 115 120 125  
325 Lys Ala Glu Gln Val Glu Ala Ser Lys Glu Met Gly Glu Thr Leu Leu  
326 130 135 140  
329 Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser Asp Ala Tyr Asn  
330 145 150 155

333 <210> SEQ ID NO: 5

334 <211> LENGTH: 159

335 <212> TYPE: PRT

336 <213> ORGANISM: Betula verrucosa

338 <220> FEATURE:

339 <221> NAME/KEY: mutation .

340 <222> LOCATION: (16)..(16)

341 <223> OTHER INFORMATION:

343 <220> FEATURE:

344 <221> NAME/KEY: mutation

345 <222> LOCATION: (28)..(28)

346 <223> OTHER INFORMATION:

W--> 348 <220>

349 <221> NAME/KEY: mutation

350 <222> LOCATION: (32)..(32)

351 <223> OTHER INFORMATION:

W--> 353 <220>

354 <221> NAME/KEY: mutation

355 <222> LOCATION: (103)..(103)

356 <223> OTHER INFORMATION:

W--> 358 <220>

359 <221> NAME/KEY: mutation

360 <222> LOCATION: (108)..(108)

361 <223> OTHER INFORMATION:

W--> 363 <220>

364 <221> NAME/KEY: mutation

365 <222> LOCATION: (152)..(152)

366 <223> OTHER INFORMATION:

W--> 368 <220>

RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/10/001,245

DATE: 12/16/2002  
TIME: 13:00:11

Input Set : A:\Sequence Listing (ASCII copy).txt  
Output Set: N:\CRF4\12162002\J001245.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:117; Xaa Pos. 53,54,126,127,199,200  
Seq#:118; Xaa Pos. 53,54,126,127,200,201  
Seq#:119; Xaa Pos. 53,54,103,126,127,198,199  
Seq#:120; Xaa Pos. 52,53,83,122,123,191,192  
Seq#:121; Xaa Pos. 30,52,53,122,123,195,196  
Seq#:122; Xaa Pos. 49,50,119,120,167,189,190  
Seq#:123; Xaa Pos. 45,46,48,75,105,108,109,145,168  
Seq#:124; Xaa Pos. 46,47,101,118,124,125,164,165  
Seq#:125; Xaa Pos. 9,42,43,98,99,100,101,154,155  
Seq#:126; Xaa Pos. 39,42,43,98,99,100,101,153,154  
Seq#:214; Xaa Pos. 1,2

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/10/001,245

DATE: 12/16/2002

TIME: 13:00:11

Input Set : A:\Sequence Listing (ASCII copy).txt  
Output Set: N:\CRF4\12162002\J001245.raw

L:40 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:1,Line#:33  
L:45 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:1,Line#:38  
L:50 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:1,Line#:43  
L:55 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:1,Line#:48  
L:60 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:1,Line#:53  
L:65 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:1,Line#:58  
L:65 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:1,Line#:63  
L:122 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:2,Line#:115  
L:127 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:2,Line#:120  
L:132 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:2,Line#:125  
L:137 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:2,Line#:130  
L:142 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:2,Line#:135  
L:147 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:2,Line#:140  
L:152 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:2,Line#:145  
L:152 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:2,Line#:150  
L:209 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:3,Line#:202  
L:214 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:3,Line#:207  
L:219 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:3,Line#:212  
L:219 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:3,Line#:217  
L:276 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:4,Line#:269  
L:281 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:4,Line#:274  
L:286 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:4,Line#:279  
L:291 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:4,Line#:284  
L:291 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:4,Line#:289  
L:348 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:5,Line#:341  
L:353 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:5,Line#:346  
L:358 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:5,Line#:351  
L:363 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:5,Line#:356  
L:368 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:5,Line#:361  
L:373 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:5,Line#:366  
L:378 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:5,Line#:371  
L:378 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:5,Line#:376  
L:435 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:6,Line#:428  
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L:445 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:6,Line#:438  
L:450 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:6,Line#:443  
L:455 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:6,Line#:448  
L:460 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:6,Line#:453  
L:465 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:6,Line#:458  
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L:522 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:515  
L:527 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:520  
L:532 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:525  
L:537 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:530  
L:542 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:535  
L:547 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:540  
L:552 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:545  
L:557 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:550

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/10/001,245

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Input Set : A:\Sequence Listing (ASCII copy).txt  
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L:562 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:555  
L:567 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:7,Line#:560  
L:8041 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:117 after pos.:48  
L:8057 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:117 after pos.:112  
L:8077 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:117 after pos.:192  
L:8106 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:118 after pos.:48  
L:8122 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:118 after pos.:112  
L:8142 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:118 after pos.:192  
L:8171 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:119 after pos.:48  
L:8183 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:119 after pos.:96  
L:8187 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:119 after pos.:112  
L:8207 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:119 after pos.:192  
L:8236 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:120 after pos.:48  
L:8244 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:120 after pos.:80  
L:8252 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:120 after pos.:112  
L:8268 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:120 after pos.:176  
L:8293 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:121 after pos.:16  
L:8301 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:121 after pos.:48  
L:8317 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:121 after pos.:112  
L:8337 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:121 after pos.:192  
L:8366 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:122 after pos.:48  
L:8382 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:122 after pos.:112  
L:8394 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:122 after pos.:160  
L:8398 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:122 after pos.:176  
L:8423 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:123 after pos.:32  
L:8431 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:123 after pos.:64  
L:8439 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:123 after pos.:96  
L:8451 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:123 after pos.:144  
L:8455 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:123 after pos.:160  
L:8480 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:124 after pos.:32  
L:8496 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:124 after pos.:96  
L:8500 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:124 after pos.:112  
L:8512 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:124 after pos.:160  
L:8529 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:125 after pos.:0  
L:8537 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:125 after pos.:32  
L:8553 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:125 after pos.:96  
L:8565 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:125 after pos.:144  
L:8590 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:126 after pos.:32  
L:8606 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:126 after pos.:96  
L:8618 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:126 after pos.:144  
L:12542 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:214 after pos.:0